

REMARKS / ARGUMENTS

The claims are 2-6, which have been rejected on the basis of the prior art. Specifically, claims 3-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Mukai et al.* U.S. Patent Application Publication No. 2004/0011776 in view of *Parmelee et al.* U.S. Patent No. 4,731,518. The remaining claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Mukai et al.*, in view of *Parmelee et al.* and further in view of *Benfield* U.S. Patent No. 3,594,534.

This rejection is respectfully traversed and reconsideration is expressly requested.

Although the Examiner's takes the position that the primary reference to *Mukai et al.* discloses a welding wire storage device for a welding system comprising a housing 3 having a free space; a first end region 5 and a second end region 6 opposite to the first end region; a welding wire arcuately arranged to lie freely in the free space of the housing; a measuring device 11 for detecting deflection of the welding wire 1; a guide element on the second end region 6; and first 5 and second 6 coupling mechanisms arranged on the housing, it is respectfully submitted

that the Examiner's position is unfounded for the following reasons.

First of all, although *Mukai et al.* describes a buffer for the welding wire, it is respectfully submitted that there are fundamental differences in *Mukai et al.*'s arrangement as compared with Applicants' welding wire storage device as set forth in claim 6. The buffer for the welding wire according to *Mukai et al.* is intended only for absorbing any delay in the accelerating operation of the push-end feeding unit 6. See paragraph [0050] of *Mukai et al.* Usually, the welding wire is conveyed as shown in FIG. 3C of *Mukai et al.*, where the welding wire 1 remains free in the wire guide tube 3 and the resistance to the conveying operation and a change of the resistance is small, thus being forwarded stably. See paragraph [0050] of *Mukai et al.*.

Contrary to *Mukai et al.*, Applicants' welding wire storage device as set forth in claim 6 is intended to avoid a change in the feeding direction of the welding wire during backward movements of the welding wire during modern welding techniques. See page 1, second paragraph, of Applicants' disclosure. The welding wire storage device according to Applicants' claim 6 is intended to store certain amounts of welding wire during normal

welding processes, whereas in the case of *Mukai et al.*, the buffer stores very small amounts of welding wire in case of insufficient synchronization of the pull-end feeding unit 5 and the push-end feeding unit 6. During a regular welding process, no welding wire is stored within the buffer.

Further, although the Examiner has taken the position that the welding wire storage device according to *Mukai et al.* comprises a housing 3, it is respectfully submitted that reference number 3 of *Mukai et al.* is not a housing, but rather denotes a wire guide tube. It is respectfully submitted that the wire guide tube 3 of *Mukai et al.* corresponds to the wire core 43 of Applicants' welding wire storage device as recited in claim 6, not to the housing 42.

The wire guide tube 3 according to *Mukai et al.* has an inner diameter three times greater than the outer diameter of the welding wire 1. See paragraph [0044] of *Mukai et al.* This arrangement allows a minimal deflection of the welding wire 1 within the wire guide tube 3 between a longest route according to FIG. 3A and a shortest route according to FIG. 3B of *Mukai et al.* Also with Applicants' welding wire storage device as set forth in claim 6, the wire core 43 has an inner diameter which is greater

than the outer diameter of the welding wire 13 to enable an unhindered conveyance of the welding wire 13 within the wire core 43. In addition, with Applicants' welding wire storage device as recited in claim 6, slight deflections of the welding wire 13 within the welding core 43 are possible. In contrast to *Mukai et al.*, the function of the welding wire storage device as recited in Applicants' claim 6 is achieved by a movement of the welding core 43 within the housing 42 as can be seen from FIGS. 4-7 of Applicants' disclosure. To enable the movement of the wire core 43 within the housing 42, one end of the wire core 43 is fixed in one end region of the housing 42 and the other end of the wire core 43 is displacably mounted in a guide element 46.

The wire core 43 of the welding wire storage device according to Applicants' claim 6 necessarily is arcuately arranged in the free space 45 of the housing 42. *Mukai et al.*, however, shows a straight course of the wire guide tube 3 and not a intendedly arcuate arrangement. According to *Mukai et al.* bending of the welding wire 1 should be avoided. See end of paragraph [0043], end of paragraph [0053] and paragraph [0055] of *Mukai et al.*.

Further, *Mukai et al.* fails to disclose or suggest a measuring device for detecting deflection of the welding wire 1. Reference number 11 of *Mukai et al.* denotes a wire feeding controller for controlling the pull-end feeding unit 5 so that the welding wire 1 is fed to the welding torch 4 at a predetermined speed defined by welding requirements. See paragraph [0019] of *Mukai et al.* In contrast, Applicants' welding wire storage device as recited in claim 6 has a measuring device 44 for detecting deflection of the wire core 43 which, for instance, is designed as an angular sensor 54, as shown in FIG. 4 of Applicants' disclosure. The measuring means 44 is provided to allow the control of the filling level in the angular storage 40. The measuring means 44 is preferably connected with a control device 4 or directly with a drive unit 52 provided in the welding apparatus 1. It is respectfully submitted that *Mukai et al.* fails to disclose or suggest the possibility of controlling the filling level within the buffer.

Finally, no coupling mechanisms are shown in *Mukai et al.* whereas with Applicants' welding wire storage device, coupling mechanisms 48 and 49 are used to enable the coupling of the housing 42 with a wire guide hose 50. See FIGS. 2 and 4 of Applicants' disclosure.

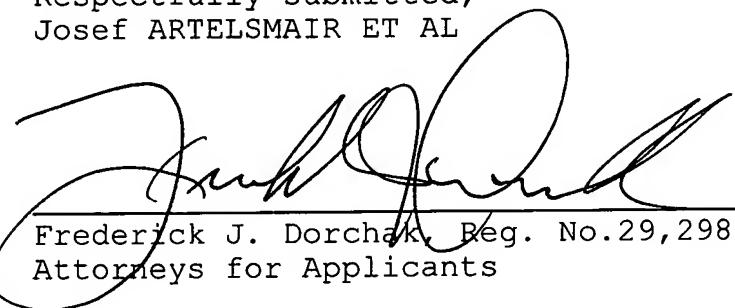
The defects and deficiencies of the primary reference to *Mukai et al.* are nowhere remedied by the secondary reference to *Parmelee et al.*, which is simply directed to a gun and cable for gas metal arc welding and does not show a welding wire storage device for storing certain amounts of welding wire during a backward movement of the welding wire.

The remaining reference to *Benfield* has been considered but is believed to be no more relevant. *Benfield* simply shows a welding apparatus with a rotatably mounted welding torch and a lock means 51 for retaining barrel tip 50 in a selected position. Within the arc shaped welding torch, there is no welding wire buffer which enables temporary storage of small amounts of welding wire during the transportation of the welding wire in a reverse direction.

Accordingly, it is respectfully submitted that Applicants' claim 6, together with claims 2-5 which depend thereon, are patentable over the cited references whether considered alone or in combination.

In view of the foregoing, it is respectfully requested that the claims be allowed and that this case be passed to issue.

Respectfully submitted,
Josef ARTELSMAIR ET AL

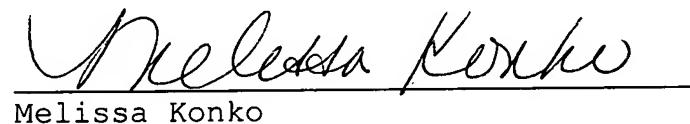


Frederick J. Dorchak Reg. No. 29,298
Attnorneys for Applicants

COLLARD & ROE, P.C.
1077 Northern Boulevard
Roslyn, New York 11576
(516) 365-9802

FJD:cmp

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Melissa Konko